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DATE OF INFORMATION 1950

DATE DIST. 6 Nov 1951

NO. OF PAGES 6

SUPPLEMENT TO REPORT NO.

THIS IS UNEVALUATED INFORMATION

METHODS OF CALCULATING THE PERCENTAGE OF PLAN FULFILMENT IN CZECHOSLOVAKIA

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We shall now give an example of the method of calculating the average percentage of plan fulfillment used until June 1948 and designate it as Process I.

Process I

Czech Provinces

<u>Nominal Task</u>	<u>Plan</u>	<u>Production</u>	<u>Percentage Fulfillment</u>	<u>Weighting Coefficient</u>	<u>Product (4 x 5)</u>
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
A	50	40	80	10	800
B	40	96	240	2	480
C	100	90	90	<u>20</u>	<u>1,800</u>
				32	3,080

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The average percentage of fulfillment in the Czech Provinces is
 $3,080 \div 32 = 96.25$.

<u>Slovakia</u>					
<u>Nominal Task</u>	<u>Plan</u>	<u>Production</u>	<u>Percentage Fulfillment</u>	<u>Weighting Coefficient</u>	<u>Product (9 x 10)</u>
	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
A	10	15	150	5	750
B	200	200	100	4	400
C	15	18	120	40	4,800
				49	5,950

The average percentage of fulfillment in Slovakia is $5,950 \div 49 = 121.43$.

<u>Entire Country</u>					
<u>Nominal Task</u>	<u>Plan (2+7)</u>	<u>Production (3+8)</u>	<u>Percentage Fulfillment</u>	<u>Weighting Coefficient (5+10)</u>	<u>Product (14 x 15)</u>
	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>
A	60	55	91.7	15	1,375.5
B	240	296	123.3	6	739.8
C	115	108	93.9	60	5,634.0
				81	7,749.3

The average percentage of fulfillment for the entire country is
 $7,749.3 \div 81 = 95.67$.

If we compare the calculated percentages of plan fulfillment for the Czech Provinces, Slovakia, and the entire country, we encounter a definite discrepancy in that the average percentage of fulfillment for the entire country does not lie between the average percentages of fulfillment for the Czech Provinces and Slovakia.

Such instances of discrepancy between the average percentage of fulfillment for the Czech Provinces, Slovakia, and the entire country have occurred several times in practical calculations. Therefore, in July 1948 a somewhat different method for calculating the average percentage of fulfillment for the entire country was introduced; we shall designate this method as Process II. We will explain the method of calculation with the same example used with Process I.

With this method of calculation, the percentage of fulfillment for the entire country lies between the percentages of fulfillment for the Czech Provinces and Slovakia.

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Process II

Czech Provinces

<u>Nominal Task</u>	<u>Plan</u>	<u>Production</u>	<u>Percentage Fulfillment</u>	<u>Weighting Coefficient</u>	<u>Product (4 x 5)</u>
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
A	50	40	80	10	800
B	40	96	240	2	480
C	100	90	90	20	1,800
				<u>32</u>	<u>3,080</u>

The average percentage of fulfillment in the Czech Province is $3,080 \div 32 = 96.25$; the same as obtained by Process I.

Slovakia

<u>Nominal Task</u>	<u>Plan</u>	<u>Production</u>	<u>Percentage Fulfillment</u>	<u>Weighting Coefficient</u>	<u>Product (9 x 10)</u>
	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
A	10	15	150	5	750
B	200	200	100	4	400
C	15	18	120	40	4,800
				<u>49</u>	<u>5,950</u>

The average percentage of fulfillment for Slovakia is $5,950 \div 49 = 121.43$, the same as obtained by Process I.

Entire Country

<u>Nominal Task</u>	<u>Plan (2+7)</u>	<u>Production (3+8)</u>	<u>Percentage Fulfillment</u>
	<u>12</u>	<u>13</u>	<u>14</u>
A	60	55	91.7
B	240	296	123.3
C	115	108	93.9

But the average percentage of fulfillment for the entire country is

$$\begin{array}{r}
 3,080 \quad 32 \\
 + 5,950 \quad 49 \\
 \hline
 9,030 \quad 81 = 111.48. \text{ This lies between} \\
 \text{the average for the Czech Provinces and Slovakia.}
 \end{array}$$

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The data given in this case has been deliberately chosen to show as clearly as possible the difference between the two methods of calculation. The difference between the average percentages calculated by the first and second methods arises in these cases because the ratio between the volume of production and the number of workers is quite different in the two areas. We could use the first method only in case we did not give the calculated average percentage of fulfillment for the entire country in relation to the average percentages of fulfillment for the Czech Provinces and Slovakia. From the standpoint of the entire country, it seems that this method is more precise than the second method. On the other hand, it does not give any consideration to any differences which appear if we compare the volume of actual production and the number of workers in the two areas, that is, in the Czech Provinces and Slovakia. The entire territory of Czechoslovakia is judged as a unit, and any differences in production conditions are obliterated. In the second method of calculation, we start with the average percentages of fulfillment for the Czech Provinces and Slovakia; the resultant percentage of fulfillment for the entire country is actually the weighted arithmetical average of the average percentages for both areas, the weight being the number of workers working on nominal production tasks in the Czech Provinces and in Slovakia. Thus, emphasis is placed on the individual areas, which form the starting point, but Czechoslovakia as a whole is not taken into consideration.

In addition to the calculations given, each month we ascertain the average percentage of fulfillment of the plan since the beginning of the year. In this type of calculation, also, we sometimes arrive at discrepancies. We shall give an example of such a calculation. It is substantially the same as Process I.

<u>January</u>					
<u>Nominal Task</u>	<u>Plan</u>	<u>Production</u>	<u>Percentage Fulfillment</u>	<u>Weighting Coefficient</u>	<u>Product (4 x 5)</u>
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
A	50	40	80	10	800
B	40	96	240	2	480
C	100	90	90	20	1,800
				32	3,080

The average percentage of fulfillment for January is $3,080 \div 32 = 96.25$.

<u>February</u>					
<u>Nominal Task</u>	<u>Plan</u>	<u>Production</u>	<u>Percentage Fulfillment</u>	<u>Weighting Coefficient</u>	<u>Product (9 x 10)</u>
	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>
A	10	15	150	10	1,500
B	200	200	100	2	200
C	15	18	120	20	2,400
				32	4,100

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The average percentage of fulfillment for February is $4,100 \div 32 = 128.12$.

January and February

<u>Nominal Task</u>	<u>Plan (2+7)</u>	<u>Production (3+8)</u>	<u>Percentage Fulfillment</u>	<u>Weighting Coefficient</u>	<u>Product (14 x 15)</u>
	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>
A	60	55	91.7	10	917.0
B	240	296	123.3	2	246.6
C	115	108	93.9	20	1,878.0
				32	3,041.6

The average percentage of fulfillment for January and February is $3,041.6 \div 32 = 95.05$.

We would expect that the average percentage of plan fulfillment for January and February would lie between the percentages of fulfillment for January and February, respectively, and not outside those limits. The discrepancies arising in the calculations of the average cumulative percentage of plan fulfillment are the result of the large fluctuations in the volume of planned and actual production from month to month, which is obvious from our example.

We have pointed out certain remaining defects in the present method (Process II) of calculating the average percentage of plan fulfillment. Some of these defects could be eliminated by introducing a different method of weighting, in which the determination of the weighting coefficients would depend on the number of workers working at individual nominal tasks.

For each nominal task, the number of workers is determined according to the status as of 1 January 1950 and according to the individual factories engaged in that task. By adding the data for individual factories, the weighting coefficients for the individual krajs, for the provinces, and for the entire country are ascertained. This method of establishing the weighting coefficients seems correct, because it gives consideration to the specific production conditions in the individual krajs. On the other hand, however, it is necessary to consider that a certain imprecision in reporting the number of workers in one factory can distort the calculation for an entire kraj, not only for the branch of industry to which the erroneous report refers but for all industry. Furthermore, one must realize that it is possible to arrive at those discrepancies which we have mentioned, not only in comparing the results for the individual provinces and the entire country but also in comparing the results for the krajs (for example, Prague Kraj is divided into two sections, Prague-city and Prague-rural, and the average percentage of fulfillment is calculated both for these individual sections and for the entire kraj).

In the USSR, for calculating the average percentage of fulfillment of specified tasks, which are given in material units as in our country, fixed planning prices are used as weighting coefficients. This means that the planned and actual production in material units is multiplied by the fixed planning price per measurable unit of a task. Another feature in the USSR is that production above the plan is not calculated into the average percentage of plan fulfillment. This means that production above the plan in certain products cannot serve to counterbalance nonfulfillment of the plan in other products.

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We shall give an example of the calculation:

Specified Task	Plan	Actual Production	Production Used in Calculating	Percentage Fulfillment $(3 \div 2)$	Percentage Fulfillment $(4 \div 2)$
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
A	20	19	19	95	95
B	500	600	500	120	100
C	100	90	90	90	90

Specified Task	Fixed Price per Unit	Product (2×7)	Product (4×7)
	<u>7</u>	<u>8</u>	<u>9</u>
A	5	100	95
B	10	5,000	5,000
C	8	800	720
		5,900	5,815

The average percentage of fulfillment is $\frac{5,815}{5,900} \times 100 = 98.56$.

If we examine the products in columns 8 and 9, we see that they are actually the value of planned and actual production (reduced to a calculation) in fixed planning prices. This means that the numerator and denominator of the fraction $5,815/5,900$ have a real significance. Furthermore, since the average percentage of fulfillment is not derived from the percentages of fulfillment for individual tasks but from the planned and actual production expressed in material units, in this calculation any variations in the volume of planned and actual production from region to region or from period to period (if it is a question of calculating the cumulative percentage of fulfillment) are taken into consideration.

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